

REMARKS

I. INTRODUCTION

Claims 74, 89, 113, 125 and 142-146 have been amended above. New claims 147 and 148 have been added. Accordingly, claims 68-148 are now under consideration in the above-referenced application. Provided above, please find a claim listing indicating the status of the presently-unamended claims, the amendments of claims 74, 89, 113, 125 and 142-146 and the addition of new claims 147 and 148 on separate sheets so as to comply with the requirements set forth in 37 C.F.R. § 1.121. It is respectfully submitted that no new matter has been added.

II. OBJECTION TO CLAIM 74

Claim 74 stands objected to as allegedly depending from claim 72 instead of from claim 73. As the Examiner shall ascertain, claim 74 has been amended to depend from claim 73, as suggested by the Examiner. Accordingly, the objection to 74 is now moot, and should therefore be withdrawn.

III. REJECTIONS UNDER 35 U.S.C. §§ 102(b) AND 103(a) SHOULD BE WITHDRAWN

Claims 68-75, 81, 82, 84-87, 89-95, 101, 102, 104-107, 109-116, 118-128, 130, 137-140 and 142-145 stand rejected under 35 U.S.C. § 102(b) as being allegedly anticipated by U.S. Patent No. 5,318,024 issued to Kittrell et al. (the "Kittrell Patent"). Claims 83, 88, 103, 108, 117, 129, 131-136, 141 and 146 stand rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over the Kittrell Patent, in view of U.S. Patent No. 3,941,121 issued to Olinger et al. (the "Olinger Patent"). Claims 76-78 and 96-98 were

rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over the Kittrell Patent, in view of International Publication No. WO 99/44089 by Webb et al. (the "Webb Publication"). Claims 79, 80, 99 and 100 were rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over the Kittrell Patent, in view of U.S. Patent No. 5,275,594 issued to Baker et al. (the "Baker Patent"). Applicants respectfully assert that the Kittrell Patent, taken alone or in combination with the Olinger Patent, the Webb Publication and/or the Baker Patent, fails to teach, suggest or disclose the subject matter recited in independent claims 68, 89, 113, 125 and 131, and the claims which depend therefrom.

In order for a claim to be rejected as anticipated under 35 U.S.C. § 102, each and every element as set forth in the claim must be found, either expressly or inherently described, in a single prior art reference. Manual of Patent Examining Procedures, §2131; *also see Lindeman Maschinenfabrik v. Am Hoist and Derrick*, 730 F.2d 1452, 1458 (Fed. Cir. 1984).

Under 35 U.S.C. § 103(a), a person is not entitled to a patent even though the invention is not identically disclosed or described as set forth in §102, "if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains." 35 U.S.C. § 103(a).

The objective standard for determining obviousness under 35 U.S.C. § 103, as set forth in *Graham v. John Deere, Co.*, 383 U.S. 1 (1966), requires a factual determination to ascertain: (1) the scope and content of the prior art; (2) the level of ordinary skill in the art; and (3) the differences between the claimed subject matter and the prior art. Based on these factual inquiries, it must then be determined, as a matter of law,

whether or not the claimed subject matter as a whole would have been obvious to one of ordinary skill in the art at the time the alleged invention was made. *Graham*, 383 U.S. at 17. Courts have held that there must be some suggestion, motivation or teaching of the desirability of making the combination claimed by the applicant (the "TSM test"). *See In re Beattie*, 974 F.2d 1309, 1311-12 (Fed. Cir. 1992). This suggestion or motivation may be derived from the prior art itself, including references or disclosures that are known to be of special interest or importance in the field, or from the nature of the problem to be solved. *Pro-Mold & Tool Co. v. Great Lakes Plastics, Inc.*, 75 F.3d 1568, 1573 (Fed. Cir. 1996).

Although the Supreme Court criticized the Federal Circuit's application of the TSM test, *see KSR International Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1741, (2007) the Court also indicated that the TSM test is not inconsistent with the *Graham* analysis recited in the *Graham v. John Deere* decision. *Id.*; *see In re Translogic Technology, Inc.*, No. 2006-1192, 2007 U.S. App. LEXIS 23969, *21 (October 12, 2007). Further, the Court underscored that "it can be important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does." *KSR*, 127 S. Ct. at 1741. Under the precedent established in *KSR*, however, the presence or absence of a teaching, suggestion, or motivation to make the claimed invention is merely one factor that may be weighed during the obviousness determination. *Id.* Accordingly, the TSM test should be applied from the perspective of a person of ordinary skill in the art and not the patentee, but that person is creative and not an automaton, constrained by a rigid framework. *Id.* at 1742. However, "the reference[s] must be viewed without the benefit of hindsight afforded to the disclosure." *In re Paulsen*, 30 F.3d 1475, 1482 (Fed. Cir. 1994).

The prior art cited in an obviousness determination should create a reasonable expectation, but not an absolute prediction, of success in producing the claimed invention. *In re O'Farrell*, 853 F.2d 894, 903-04 (Fed. Cir. 1988). Both the suggestion and the expectation of success must be in the prior art, not in applicant's disclosure. *Amgen, Inc. v. Chugai Pharmaceutical Co., Ltd.*, 927 F.2d 1200, 1207 (Fed. Cir. 1991) (citing *In re Dow Chem. Co.*, 837 F.2d 469, 473 (Fed. Cir. 1988)). Further, the implicit and inherent teachings of a prior art reference may be considered under a Section 103 analysis. See *In re Napier*, 55 F.3d 610, 613 (Fed. Cir. 1995).

Secondary considerations such as commercial success, long-felt but unsolved needs, failure of others, and unexpected results, if present, can also be considered. *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 1538-39 (Fed. Cir. 1983). Although these factors can be considered, they do not control the obviousness conclusion. *Newell Cos. v. Kenney Mfg. Co.*, 864 F.2d 757, 768 (Fed. Cir. 1988).

The Kittrell Patent describes a laser endoscope for generating a spectrally resolved spatial image of tissue. Fiber optics positioned within an optically shielded endoscope are used to deliver laser radiation to tissue to be imaged. Radiation returning through the fiber optics from the tissue is spectrally resolved and used to generate an image of tissue that can assist in diagnosis and treatment. (See Kittrell Patent, Abstract).

A generalized spectral system is shown in Figs. 21 and 22 of the Kittrell Patent. As illustrated in Fig. 21, an excitation light 95 is sent from a laser or conventional light source into a selected optical fiber 20. This light passes through a beam splitter 52 or a mirror with a hole 50 (as shown in Fig. 22), and focused onto the input end 40 by a lens 41. The light exits the distal end of the optical fiber 20, passes through the optical shield 12,

and impinges on the tissue 34 (of Fig. 4). The fluorescence and scattered light is returned via the same or a different optical fiber 20 to the proximal end 40 of the optical fiber 20. This return light 54 is separated by the beam splitter 52 or by the mirror 50 with hole 51 (see Fig. 22), and enters a spectrum analyzer 60. A diffraction grating 68 of the spectral detector 65 can disperse the return light from a target. The dispersed light is projected onto a multichannel detector 70 which has many detectors. (See *id.*, col. 19, Ins. 20-47).

The Olinger Patent relates to a needle endoscope includes a hollow needle of about 18-gauge, a lens system within the needle, an image transmitting bundle of flexible fiber-optic rods within the needle, a plurality of illumination transmitting fiber-optic rods within the needle, an operative channel within the needle, and apparatus to shift the image transmitting bundle with respect to the lens system and needle to provide focus adjustment for focusing the endoscope on objects at various distances from the end of the needle. (See Olinger Patent, Abstract).

The Webb Publication relates to a scanning confocal microscopy system, especially useful for endoscopy with a flexible probe which is connected to the end of an optical fiber (9). The probe has a grating (12) and a lens (14) which delivers a beam of multi-spectral light having spectral components which extend in one dimension across a region of an object and which is moved to scan in another dimension. The reflected confocal spectrum is measured to provide an image of the region. (See Webb Publication, Abstract).

The Baker Patent relates to angioplasty system and method for identification and laser ablation of atherosclerotic plaque at a target site in a blood vessel. Such system and method employ fluorescence analysis for identification of noncalcified plaque and

calcium photoemission analysis for identification of calcified plaque. Calcified plaque is identified by time domain analysis of calcium photoemission. A high energy pulsed ultraviolet laser can be used for stimulation of fluorescence and for stimulation of calcium photoemission. The system is capable of distinguishing between calcium photoemission and a defective condition of optical fibers that are used to deliver laser energy to the target site. In an another embodiment of the angioplasty system, calcium photoemission is identified during a nonablative initial portion of the laser ablation pulse. When calcium photoemission is not identified, the laser ablation pulse is terminated during the initial nonablative portion thereof. (See Baker Patent, Abstract).

Applicants' invention, as recited in independent claim 68, relates to an apparatus for obtaining information for a structure which comprises, *inter alia*:

a lens arrangement which is configured to provide there through electro-magnetic radiation; and

a dispersive arrangement configured to receive at least one portion of the electro-magnetic radiation and forward a dispersed radiation thereof to at least one section of the structure.

Applicants' invention, as recited in amended independent claim 89, relates to an apparatus for obtaining diagnostic information for a structure and modifying at least one property of at least one portion of the structure which comprises, *inter alia*:

a lens arrangement and a plurality of fibers configured to provide there through the electro-magnetic radiation, at least one first fiber of the fibers being configured to provide a first electro-magnetic radiation to the at least one portion so as to obtain the information, and at least one second fiber of the fibers configured to provide a second electro-magnetic radiation to the at least one portion so as to modify the at least one property; and

a dispersive arrangement configured to receive the first and second electromagnetic radiations.

Applicants' invention, as recited in amended independent claim 113, relates to an apparatus for obtaining information for a structure which comprises, *inter alia*:

a lens arrangement configured to provide a plurality of electro-magnetic radiations, and a dispersive arrangement configured to receive the electro-magnetic radiations and forward a dispersed radiation of each of the electro-magnetic radiations to at least one portion of the structure and at least partially overlap the at least one portion ...

Applicants' invention, as recited in amended independent claim 125, relates to an apparatus for obtaining information for a structure which comprises, *inter alia*:

a lens arrangement configured to provide an electro-magnetic radiation, and a dispersive arrangement configured to receive at least one portion of the electro-magnetic radiation and forward a dispersed radiation thereof to a particular location on at least one portion of the structure ...

Applicants' invention, as recited in independent claim 131, relates to an apparatus for obtaining information for a structure which comprises, *inter alia*:

a lens arrangement which is configured to provide there through electro-magnetic radiation; and

a dispersive arrangement configured to receive at least one portion of the electro-magnetic radiation and forward a dispersed radiation thereof to at least one portion ...

Thus, each of independent claims 68, 89, 113, 125 and 131 recites a "dispersive arrangement." Applicants again respectfully assert that Wurster Patent in no way teaches or suggest, much less discloses an apparatus for obtaining information for a structure which includes **a lens arrangement which is configured to provide there through electro-magnetic radiation and a dispersive arrangement that is configured to receive at least one portion of the electro-magnetic radiation and forward a**

dispersed radiation to at least one portion of the structure, as explicitly recited in independent claims 68, 89, 113, 125 and 131 of the above-identified application.

In the latest non-final Office Action, the Examiner points to lens arrangements 40 and 41 of the Kittrell Patent as guiding the light into optical fibers. (See Office Action dated December 9, 2008, p. 3, Ins. 3-5). Then, the Examiner points to a reflective mirror lens grating 68 of the Kittrell Patent at the return end of the device. (See *id.*, p. 3, Ins. 8-9). Accordingly, it appears that the Examiner is equating the combination of the lens arrangements 40 and 41 and the reflective mirror lens grating 68 of the Kittrell Patent to the lens arrangement and the dispersive arrangement, respectively, as recited in independent claims 68, 89, 113, 125 and 131.

However, the Examiner's apparent belief that the reflective mirror lens grating 68 of the Kittrell Patent can be in any way equated to the recited dispersive arrangement is misplaced. Indeed, the reflective mirror lens grating 68 of the Kittrell Patent, upon the receipt of the returned light from the sample, diverge the light to other parts of the system, i.e., by forwarding the divergent radiation to the detector (70), i.e., away from the structure. Thus, the reflective mirror lens grating 68 of the Kittrell Patent certainly **does not direct dispersed radiation** to any portion of the structure, as required in independent claims 68, 89, 113, 125 and 131.

Then, in Fig. 13C of the Kittrell Patent, e.g., the grading 223 is shown as possibly providing light to the sample or the structure. However, no lens is shown therein which is configured to provide the electro-magnetic radiation therethrough, i.e., the electro-magnetic radiation that is received by the grading 223. Similarly, Fig. 13B of the Kittrell

Patent, a prism is shown configured to deflect light to the sample, but again, no lens is provided to facilitate the electro-magnetic radiation therethrough.

The combination of the lens arrangement and the dispersive arrangement, as recited in independent claims 68, 89, 113, 125 and 131, can be important so as to, e.g., obtain a macroscopic image of the sample. For example, if no lens is provided in combination with the dispersive arrangement, then different dispersive components produced by the dispersive arrangement would likely overlap. Further, if any image is to be produced, it would be of such poor quality as being potentially unusable. Indeed, nowhere in the Kittrell Patent is there any disclosure, teaching or suggestion of the combination of the lens arrangement providing the electro-magnetic radiation(s), and the dispersive arrangement receiving such electro-magnetic radiation(s), and providing the dispersed radiation to at least one portion of the structure, as recited in independent claims 68, 89, 113, 125 and 131 of the above-identified application.

The Olinger Patent, the Webb Publication and/or the Baker Patent do not cure such deficiencies of the Kittrell Patent, and the Examiner does not contend that they do.

Accordingly, Applicants respectfully submit that the Kittrell Patent, taken alone or in combination with the Olinger Patent, the Webb Publication and/or the Baker Patent, does not render obvious the subject matter recited in independent claim 68, 89, 113, 125 and 131. The claims which depend from such independent claims are also not taught, suggested or disclosed by the Kittrell Patent, taken alone or in combination with the Olinger Patent, the Webb Publication and/or the Baker Patent for at least the same reasons.

Regarding claims 83 and 103, these claims depend from independent claims 68 and 89, respectively, and further now include the recitation of a **fluid displacement arrangement acts on the dispersive arrangement**. The Examiner appears to be attempting to combine the Olinger Patent with the Kittrell Patent to allegedly teach or suggest such subject matter. However, even if, *arguendo*, the Olinger Patent describes a needle which is part of or includes a fluid displacement arrangement, the Olinger Patent fails to cure the deficiencies of the Kittrell Patent to teach or suggest that any such fluid displacement arrangement **acts on the dispersive arrangement**. No such action is even mentioned, much less taught or suggested in the Olinger Patent.

With respect to claims 142-146, these claims depend from independent claims 68, 89, 113, 125 and 131, respectively, and further now include the amended recitation that **the dispersive arrangement is structured to provide at least 100 spectrally-resolvable points without a controlled mechanical motion**. Indeed, none of the configurations of the Kittrell Patent are able to provide at least 100 spectrally-resolved points on the sample (without a controlled mechanical motion) at least because the Kittrell Patent fails to disclose any lens arrangement in combination with the dispersive arrangement (providing disperse radiation to the sample). In addition, it is respectfully asserted that the Olinger Patent, the Webb Publication and/or the Baker Patent do not cure at least such further deficiencies of the Kittrell Patent.

Thus, for at least these reasons, withdrawal of the rejections of these claims under 35 U.S.C. §§ 102(b) and 103(a) is respectfully requested.

IV. NEW CLAIMS 147 AND 148

New claims 147 and 148 are provided to cover certain exemplary embodiments of the present application. Support for these claims can be found in the originally-filed specification and drawings. Claims 147 and 148 depend from claims 74 and 68, respectively. These claims are believed to be unanticipated and not rendered obvious by the Kittrell Patent, taken alone or in combination with the Olinger Patent, the Webb Publication and/or the Baker Patent for at least the same reasons as presented herein above, and are also believed to be separately patentable. Applicants respectfully request that the Examiner provide a confirmation that new claims 142-146 meet the requirements for patentability in the next communication.

V. CONCLUSION

In light of the foregoing, Applicants respectfully submit that all pending claims 68-148 are in condition for allowance. Prompt consideration, reconsideration and allowance of the present application are therefore earnestly solicited.

Respectfully submitted,

Dated: March 9, 2009



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